Fall Detector

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Rapid technological progress has contributed to the development of a wide range of telemonitoring systems which make treatment and management of chronic diseases as well as danger prevention possible. Elderly people (persons above the age of 60),whose number is statistically growing, belong to the high risk group. One out of three persons belonging to this group suffers a fall during daily activities. Timely fall detection could reduce fall consequences or even death rate. Also, mobility rate is an objective indicator of elderly people’s health status thus continuous long term monitoring can give the most objective information about mobility and provide objective information for doctors. This work describes system for fall detection and mobility measuring which continuously measures and stores mobility data and alarms a person in case of fall or prolonged inactivity. Wearable part of the system (sensor node) is small, wireless and meant to be beltworn. It consists of microcontroller, three-axis accelerometer and transmitter.Sensor node communicates with receiver through BluetoothBee protocol and the receiver is connected to PC via Bluetooth connection. PC runs the software which calculates mobility level, detects fall, activity or prolonged inactivity using three-axis acceleration data. In the case of fall detection or prolonged inactivity, the application will alarm another person via SMS. All the results are stored into log files. Application can also graphically display mobility level in real-time or in past. System is not expensive (less than 70$), it is small, light weighted and easy to use. It can be used by elderly people who live on their own, or by those who live in the nursing homes.

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